

# **Illegal Logging in Belize:**

*Policy & Enforcement Mechanisms for a Sustainable Future*

By

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## EXECUTIVE SUMMARY

Deforestation and forest degradation account for a major portion of Global Greenhouse Gas Emissions. Illegal logging accounts for the majority of all forests harvested in key tropical countries. While not widely publicized, the major Central American forests of Belize are of significant value to this industry and have proven incredibly vulnerable to illegal logging practices over recent years. Since the 1960's, deforestation rates have continued to rise rapidly, due in large part to the expansion of citrus, banana, and sugar cane plantations. Rapid agricultural growth, coastal developments for tourism, and illegal logging for valuable hardwoods has led to an annual deforestation rate of approximately 2.3%, which is double the percentage of Central America as a whole. Should current deforestation rates continue unchecked, overall forest cover in Belize will decrease to 58% by 2020 and disappear entirely by 2050. This study recommends improvements for the Belizean forestry industry primarily through an economic and social examination of current forest management standards gathered through research and personal interviews with government, NGOs, and various stakeholders. Focusing on the illegal harvest of rosewood, cedar, and mahogany from Toledo and Chiquibul National Park over a period of two years, this study ultimately found that the total value lost to the Belizean government due to the illegal harvesting hardwoods between 2010-2012 was roughly \$USD 490,177. A relatively minor number, this is in fact representative of a much larger problem--this loss, calculated by estimates of what the government would have collected through the use of current taxation values-- is only 2.3% of the overall potential market value of the hardwoods exported during this time. That is, even if illegal logging were to be eliminated today, Belize is still failing to capture an adequate portion of the revenues from its natural resource. With a combined global market of approximately \$ USD 21,488,144 and a nominal VAT of 5% with the addition of minor sums per board foot, Belize should be collecting significantly more than approximately half a million dollars worth of the total value, and is losing significant sums of money to foreign countries by failing to conduct and implement an appropriate monetary assessment and tax policy on their own high-value hardwoods. Ultimately, there are a number of potential recommendations necessary to address both illegal logging practices and the issue of high percentage monetary losses on outgoing hardwoods. In sum, Belize needs to implement a number of policy changes almost simultaneously. These include increased environmental enforcement mechanisms, a renewed economic assessment of timber products leaving the country, improved indigenous awareness and education, exploration of on-site processing plants, and the consideration of international initiatives such as ecosystem service payment plans that have the potential to help protect Belize's forests as well as its people. While these may be instituted in stages, all are necessary if Belize is to create even a semblance of renewable resource from its forests.

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## **LIST OF ACRONYMS**

BIT- Bilateral Investment Treatise

CARICOM- Caribbean Community

CITES- Convention on the International Trade of Endangered Species

EIA- Environmental Investigation Agency

EPZ- Export Processing Zone

FCD- Friends for Conservation and Development

FLEGT- Forest Law Enforcement, Governance, and Trade

FSC- Forest Stewardship Council

GEF- Global Environment Fund

GHG- Greenhouse Gasses

ICCWC- International Consortium on Combating Wildlife Crime

INTERPOL- International Criminal Police Organization

PES- Payments for Ecosystems Services

REDD- Reduction of Emissions form Deforestation and Forest Degradation

SATIIM- Sarstoon Temash Institute for Indigenous Management

SICA- Central American Integration System

SIECA- Secretariat of Central American Economic Integration

UNEP- United Nations Environment Program

VPA- Voluntary Partnership Agreement

## INTRODUCTION

Deforestation and forest degradation account for up to 17% of Global Greenhouse Gas (GHG) emissions, making the state of the world's forests a global concern. While both national and international efforts are being made to better manage and protect forested areas, a number of factors such as steadily growing farm and rangeland as well as increased demand for high value hardwoods have limited the success of these efforts. Equally important, illegal logging continues to plague forest preservation efforts (Pfaff et. al, 2010).

The bulk of global deforestation and illegal logging takes place in tropical forests located in the Amazon basin, Central Africa, and Southeast Asia. Recent studies estimate that illegal logging accounts for 50–90% of the volume of all forest harvests in key tropical countries and 15–30% of all forest harvests globally. The total economic value of global illegal logging is estimated between US\$ 30 and US\$ 100 billion annually (Nellemann, 2012).

This study recommends improvements for the Belizean logging industry primarily through social and economic mechanisms, with a focus on the importance of sustainable and innovative financing tools as well as the need for increased transparency, inter-governmental coordination, and significant curtailing of governmental corruption.

### **Objectives for this project include:**

- a) Provide an understanding of the illegal as well legal logging, harvest, and trade practices of high value hardwoods in Belize;
- b) Evaluate economic losses due to illegal logging as well as current legal logging and trade;
- c) Provide a set of proposals to the government of Belize regarding ways in which to decrease illegal logging and improve legal trade.

As tracking and monitoring technologies have evolved over the course of the past decade, the ability of engaged governments and NGOs to track all kinds of logging activity has vastly increased. So too, however, has on-the-ground expertise in illegal logging, resulting in increasingly innovative methods of concealment and timber laundering. The primary methodologies for moving unlawful timber include the falsification of logging permits, bribes to obtain said permits, logging outside of permitted concession areas, and mixing illegal with legal timber at some point during transport or processing<sup>1</sup>.

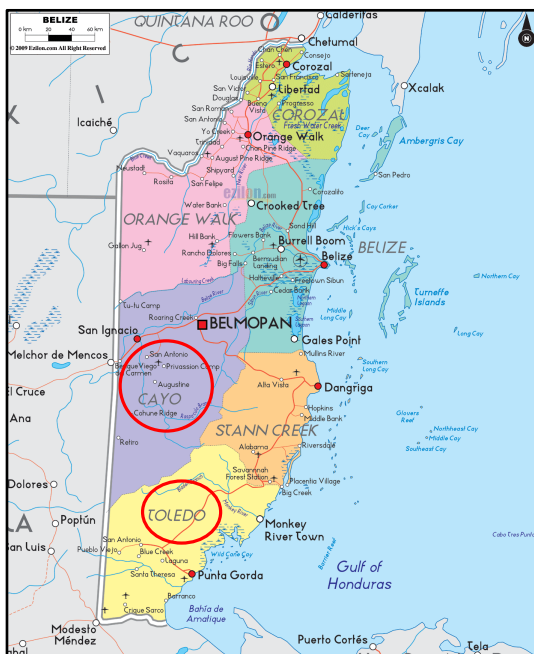
Many cases of illegal logging throughout Latin America, including Belize, involve road manufacturing and the cutting of spacious corridors, facilitating clear-cutting for quick cash by impecunious locals, who are later removed from their land

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<sup>1</sup> For a visual demographic of the weaknesses in the timber supply chain, please reference Appendix IV

through land buyouts conducted by ranchers and soy producers (Johnson et. al 2011). Belize itself is particularly vulnerable to illegal logging, given its high density of valuable hardwoods and poor political infrastructure. While there are numerous regions of Belize under attack by illegal loggers, the Toledo and Chiquibul National Forests are the areas of greatest concern, as the majority of illegal logging within the country takes place in these two regions which are both geographically accessible as well as full of high-value timber. While significant study has already taken place regarding the cedar and mahogany trade from Chiquibul to Guatemala, the Rosewood trade in Toledo has, until this point, remained largely unexamined on an official scale. Due to the fact that there is already comprehensive material available regarding illegal logging and economic consequences in Chiquibul, combined with the request from the Belizean Environmental Minister for a report focused on the combined losses between the two regions, the majority of my personal research was conducted in Toledo as an employee of the Environmental Investigation Agency (EIA), with additional numbers garnered from investigations conducted by Sarstoon Temash Institute for Indigenous Management (SATIIM), and Friends for Conservation and Development (FCD).

*Map 1. The Country of Belize, with Toledo and Chiquibul Regions Highlighted in Red*



Source: Ezilon Maps

While Belize supplies several types of hardwood, over the course of the past several years, rosewood, cedar, and mahogany have been exported at an unprecedented rate for furniture and goods consumed in China, Europe and North America. Records from the Forest Department suggest a steady rise in Rosewood exports over the years, peaking in early 2012. Between 2010 and 2012, thousands of Rosewood planks were removed from the forests of Toledo, a great deal of it through illegal channels (EIA, 2014).

**Policy Options**

Among the many international forest protection agreements, the Convention on Trade in Endangered Species (CITES), the International Consortium on Combating Wildlife Crime (ICCWC), and Voluntary Partnership Agreements (VPAs) are currently the most prominent international monitoring and enforcement initiatives in use to protect forests, providing a variety of services ranging from satellite analysis and criminal tracking in conjunction with the International Criminal Police Organization (INTERPOL) to customs control mechanisms and policy recommendations. Additionally, certifications such as the Forest Stewardship Certification (FSC) have played significant roles in halting illegal deforestation, providing numerous economic as well as legal incentives to promote fair and authorized trade in endangered wood products. Unfortunately, there is frequently a disconnect, often fueled by outright corruption, between the recommendations made by enforcement groups and the actions taken by certification parties, often leading to confusion and potential weaknesses throughout the supply chain, from logger to purchaser (EIA, 2014).

## METHODOLOGIES

In April of 2012, a group of Environmental Investigation Agency (EIA) staff met members of the of Ya'axche Conservation Trust and Belize's Ministry of Forestry. They reported that massive amounts of Honduran Rosewood (*Dalbergia Stevensonii*) had been unsustainably extracted from the Toledo District by Chinese companies from 2010 through March 2012. In response, the Minister of Forestry, Fisheries, and Sustainable Development, Lisel Alamilla, issued a moratorium on the cutting and exportation of Rosewood on 20 March. EIA decided to pursue the issue.

**Interviews:** During the course of the EIA scoping investigation, a number of interviews were conducted in order to gain a comprehensive understanding of the illegal logging of Rosewood taking place in Belize. These interviews were eventually compiled into a report published by the Environmental Investigation Agency, and are cited as such throughout the course of this paper (EIA, 2014). However, the construction of the publication did edit out the process of some specific data collection. In order to clarify how and from whom material was collected, below is a brief description of the key individuals interviewed and information shared during the course of our fieldwork.

It is important to note that, in the course of an undercover investigation, common research methodologies and data collection tools are frequently unusable—creating a sense of trust between interviewer and participant is vital, and most contributors wish to put nothing in writing, nor will they allow film or voice recordings. Conversations must be held in person, and the comfort of the interviewee is tantamount. This invariably implies that not all questions are answered, as pushing for confidential information may cause you to lose the informant. While there were certain questions asked of all interviewees<sup>2</sup>, the interviews were semi-structured and participants were not required to answer any specific questions. In order to protect the participants surveyed, throughout the course of this thesis information provided by the specific informants listed below will simply be cited as (EIA, 2014); or, in some instances, by group name.

### **Ya'axche Conservation Trust (YCT)**

The Conservation Trust represents 12 Mayan communities in the northern region of the Toledo District focused on supporting sustainable development and human rights.

### **SATIIM, Sarstoon Temash Institute for Indigenous Management**

SATIIM represents 10 indigenous communities in the southern Toledo District and manages the Sarstoon Temash National Park, which is under threat from illegal logging and hydrocarbon development. The executive director, is spearheading a program to encourage local communities to develop 25, 5, and 1-year plans to sustainably harvest remaining Rosewood resources. Throughout the course of his interview the director that the Rosewood moratorium did not have unanimous support among communities,

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<sup>2</sup> Please see Appendix I for the list of questions posed to all participants.



and argued that both export companies and corrupt government officials are trying to pit indigenous communities against SATIIM and YCT.

#### **Golden Creek indigenous community**

The Chairman of the Toledo Alcalde Association described the impacts of the purge on area communities. He stated that members of the forest department had been issuing fake permits that authorized Chinese contractors to enter the forests and quietly harvest timber, stressing that indigenous communities are particularly susceptible to exploitation because they lack information and educational access.

#### **Samuel Edwardo, Middleman to Chinese companies (former forestry official)**

Mr. Edwardo had five containers worth of Rosewood in his possession that he claimed had been cut prior to the Moratorium. He was quite hostile to EIA and would not let us film or take photos. Mr. Edwardo told us that he did know who the buyer of his wood was, only that it was a Chinese man.

#### **Forest Department Representative**

This representative is responsible for tracking down the Rosewood that has been cut in Toledo since the moratorium, stamping it, and collecting the royalty. While responsible for monitoring 150,000 hectares, he told us he is allocated only 6 gallons of fuel per month. He believed that some people were still chopping down Rosewood trees clandestinely and that they were secretly being stockpiled and disguised as other species for sale and shipment.

#### **Chief Forest Officer, Forest Department**

This forest officer provided us with a broad overview of Belize's land use, timber concession system, and the timber market. He explained the concession system, forest department certification, and later, the Rosewood purge. He blamed the 2008 and 2010 Supreme Court decisions that granted indigenous people full jurisdiction over natural resource extraction in indigenous territories for the mass Rosewood extraction, saying that they were happy to make a quick buck working with Chinese exporters. He estimated that 90% of Belizean rosewood had been extracted and that the moratorium was justified until there was time to carry out an assessment. He noted that the forest department had confiscated several tons that had been extracted since the moratorium. He also noted that the Forest Department suffers from limited capacity to manage Belize's forests: there are only 35 staff designated to manage 2 million acres of national parks and forest reserves. In Toledo, there are only two officers to monitor 360,000 ha of land.

#### **Minister of Forestry, Fisheries and Sustainable Development**

Ms. Alamilla was named Minister of Forestry in March 2012, partly in response to her high-profile advocacy against the Rosewood purge the past two years as the Executive Director of YCT. Her first order of business in March was to issue a moratorium on the harvesting and export of Rosewood nationwide. She noted that the key to generating political will to manage and protect forests was in developing

an effective economic argument, including an analysis of revenue lost through low royalties and illegal logging, as well as the economic benefits of sustainable management. This statement is what ultimately led to the choice of this particular Master's Project, with its narrow focus on economic effects and potential solutions through monetary inducements.

**Research:** Additional data reviewed was produced primarily by the Environmental Ministry of Belize and the non-profit organization Friends for Conservation and Development, a local group that co-manages Chiquibul Forest, and recently published a 2012 report entitled *Illegal Logging In the Chiquibul Forest: An Economic and Ecological Valuation Assessment*. Toledo and Chiquibul are the two most heavily logged areas in Belize and together provide a much more inclusive view of the situation as a whole, which is why portions of the FCD report are integrated in to the economic assessment portion in this paper<sup>3</sup>. Additionally, information regarding international policy mechanisms, enforcement and monitoring techniques, and existing statistics regarding global illegal logging trends were gathered from a variety of sources, primarily the United Nations Environmental Programme, The Center for International Forestry Research, Interpol, the World Trade Organization, and the Convention on International Trade in Endangered Species.

While in Belize, the team was able to confirm that rosewood logging, as well as that of cedar and mahogany, had increased to unprecedented rates within the region, destroying the forests in unmitigated swaths. The forest department, both corrupt and underfunded, has no way of managing the issue. Indigenous Maya are being taken advantage of for cheap labor and access to concession areas for harvest of illegal, high-value hardwoods.

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<sup>3</sup> For a link to the full report, please see Appendix II

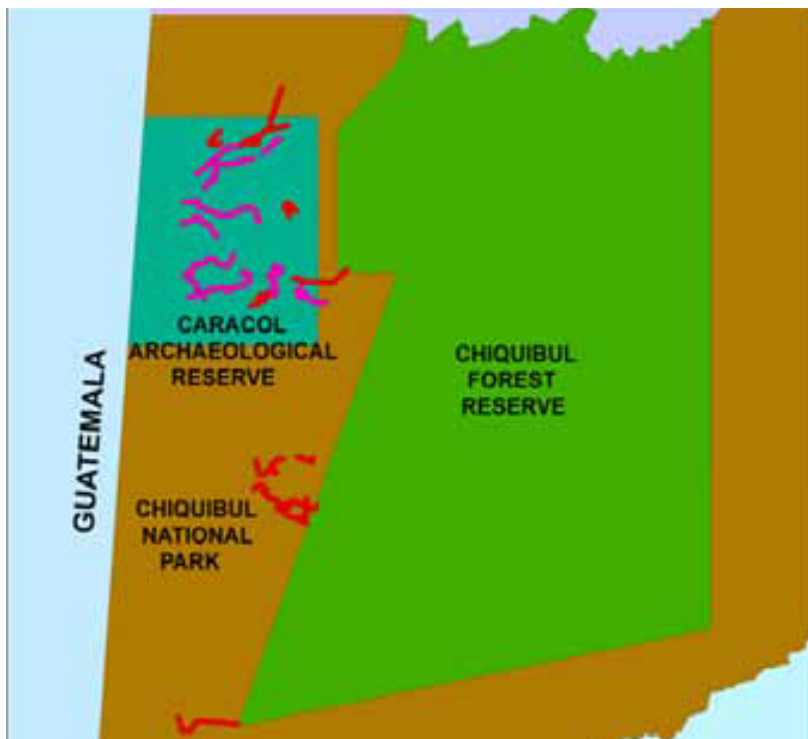
## STUDY LOCATIONS

### Chiquibul

The Chiquibul Forest is the largest single block of protected forest in Belize and is part of the Chiquibul-Maya Mountains Key Biodiversity Area. Like many protected areas within Belize and the entire Mesoamerican region it is faced with increasing anthropogenic threats. The Chiquibul Forest (CF) composed of the Chiquibul Forest Reserve, Chiquibul National Park and the Caracol Archeological Reserve is the largest single block of protected forest in Belize and is part of the Chiquibul-Maya Mountains Key Biodiversity Area. While the challenges and threats may be slightly different from those facing coastal logging pressures, the ability with which to address them will come from the same monetary structure designed to manage the other main area, Toledo (FCD, 2012).

Presently, illegal logging, mainly by Guatemalans, is considered the most important source of stress for biodiversity conservation (FCD, 2012). There are no human settlements within the forest. However, along the 54 km border, there are approximately 68 Guatemalan settlements, mostly poor and highly dependent on the immediate forests of the Chiquibul, whose value lies in the plethora of available cedar and mahogany that populate the region. (Bridgewater et al. 2006).

*Map 2. Map of the Chiquibul Forest Region*



Source: Friends for Conservation and Development

## Toledo

*Dalbergia Sevensonii*, frequently referred to as Honduran Rosewood, has been utilized as an economic resource in Toledo for decades, with records of trade dating back to at least 1925 (EIA, 2014). *Dalbergia Stevensonii* is renowned as a beautiful and versatile wood, and the artisans of Belize's Mayan communities have been using it to fashion tools, instruments and furnishings for centuries.

Toledo is the poorest district in Belize, and the central government has few resources available to manage the protected areas or enforce environmental regulations. There are currently only three forest officers stationed in the Toledo District, who are expected to oversee approximately one million acres of forest, undoubtedly one of many factors contributing to the recent rampant harvesting of the rosewood (Cherrington et al, 2010). Even more alarming, the forests of Toledo themselves, once very difficult to access, are no longer protected by their isolation. The paving of the Southern Highway was completed in 2009, and a new highway to Guatemala, extending from the border town of Jalacte to the existing Southern Highway, is scheduled for completion in 2014. It is now considerably easier to access the forests themselves, and to transport lumber from forest to point of export (EIA, 2014).

Map 3. Map of the Toledo District



Source: Embassy World.com, 2014

## **Background on Forest Management in Belize**

The Forest Department is responsible for all forest management in Belize, and operates under the Forest Act, which dictates timber harvesting in forest reserves, the Wildlife Act, and the National Park System Act. Over 45% of Belize forestland is 'protected', although even this official number is deceptive, as harvesting concessions may be granted in protected areas. Outside of these reserves, Belize grants one-year licenses that allow owners to harvest as much timber as they desire, often leading to clear-cutting of the forest. Compounding this problem is the fact that, despite Belize exporting a significant amount of a few valuable species, it remains a net forest product importer, primarily due to its lack of processing capacity (EIA, 2014).

The variety of factors leading to increased logging have been exasperated by the very agency mandated to protect the forests. According to the NGOs and community members active in Belize, the Forest Department (FD) has a poor record of forest management, which manifested itself profoundly over the past few years during the Rosewood purge. In fact, according to the ministry and YCT, it was the corrupt department officials themselves who were granting unlimited export licenses to Chinese exporters (SATIIM, 2014).

One of the key drivers of illegal logging in Belize is increased demand for hardwood from China. Since 2010, import volumes have continued to increase at an average of 180% per annum. In 2012, China imported 757,600 m<sup>3</sup> of rosewood. While this accounts for less than 10% of total Chinese tropical log imports, it is a significant factor for Belize. At least part of this demand is attributed to China's recent economic stimulus package, which favors real estate development—with the subsequent increased demand for wooden building materials as well as furniture. Additionally, the flourishing rosewood business in recent years has attracted additional investors, thereby furthering demand for materials (Lawson, 2014).

The extensive logging activity has consequences well beyond the developed countries concerns over global warming. The people actually living on the land are, too predictably, the first to suffer harm. Worse, the harm is inflicted in part by their own government. An investigation into rosewood logging in Toledo led by the Maya Leaders' Alliance and the Yax'che Conservation Trust in August 2011 indicated that the Forest Department is both facilitating and organizing the illegal harvest of rosewood by allocating 'right to buy' export permits to private buyers, allowing them to place official government stamps on illegally harvested logs (Yax'che, 2012).

Additional damage resulted from two rulings made by the Belize Supreme Court in 2008 and 2012, granting customary land rights to Mayan communities in Toledo, and jurisdiction over all resources within them. While these decisions may seem to favor indigenous peoples, the truth is that the majority of these communities had no resource management plans in place and as a result, local chiefs were able to freely and casually issue extraction permits (SATIIM, 2012).

This has created significant jurisdictional confusion. Within customary Mayan lands, State natural resource regulations do not apply. Nevertheless, once the rosewood left Mayan territory it was under the jurisdiction of the State, meaning that harvesters should have had to pay export royalties and gain extraction permits. According to all accounts, these permits were given freely, and hundreds if not thousands of containers left the country without paying any form of royalty (Young, 2008). In response to concerns over illegal logging, Environmental Minister Lisel Alamilla enacted a comprehensive Rosewood Moratorium on March 16<sup>th</sup> of 2012. The Moratorium proved crucial, providing the Forest Department with a short window of time in which to assess the situation and attempt to implement better controls (Young, 2008).

## ECONOMIC ASSESSMENT

### Legal Logging, Costs, & Taxation

The ongoing logging activity has been highly profitable – but not for the indigenous people or even the majority of the Belizean government.

Interviews conducted with community members and corroborated by government officials led to the discovery of significant disparities in cost structure between harvesters, the Belizean government, and sellers. On average, Mayan communities were paid approximately USD 1.50-2.00 per board foot for rosewood by middlemen, who are paid about USD 2.50 per board foot by Chinese exporters. The rosewood then sold for anywhere between USD 20-150 per board foot in China, although the most common range heard in interviews and recorded by the forest department through the course of their own research was between USD 50-70 per board foot leading to an average of USD 65 for general calculation purposes (EIA, 2014). The data in Table 1 provides a breakdown of the amount of revenue from Rosewood collected along of the supply chain.

*Table 1. Average Costs of Rosewood per Board Foot in USD, estimated for 2011-2012<sup>4</sup>*

Amount paid to Mayan Communities (average amount per board foot, USD)	Amount paid to middlemen (average amount per board foot, USD)	Average amount sold for in Chinese markets (per board foot, USD)
<b>1.75</b>	<b>2.50</b>	<b>65.00</b>
% of total profit	% of total profit	% of total profit
<b>2.7%</b>	<b>3.8%</b>	<b>93.5%</b>

Source: EIA interviews, 2012

Once the profit distributions between the groups involved in the trade flow to China are broken down, it becomes immediately evident that there is significant disparity between the harvesters and middlemen compared to the Government and, ultimately, the Chinese purchasers. While the exact amount of profit retained by Chinese companies remains unknown, as processing, shipping, import taxes, customs, and other costs and variables will certainly decrease the estimated profit margin, it is clear that Belize does not gain much from the harvests as compared to the purchasers. For the purposes of this project, these additional costs are noted, but are not included in the analysis.

On average, mahogany also sells in Chinese markets for approximately \$65.00/board foot, although there is a huge range depending on the quality of the wood harvested. Of this 65 USD/board foot, only 4.25 USD remains in Belize—a paltry 6.5% of the total potential profit, indicating that 93.5% of the potential value is collected by Chinese companies.

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<sup>4</sup> Please see Appendix III for calculations

## Illegal Logging, Costs, & Taxation

Within Toledo alone, reports claimed that 112 containers of Rosewood were illegally exported from 2011 -2012, amounting to what should have been an estimated \$12 million in sales for exporters and producing only \$200,000 in royalties, amounting to an effective royalty rate of 1.7% (EIA, 2014).

Outside of Toledo, the recent Friends for Conservation and Development (FCD) report provides information regarding illegal logging within the Chiquibul Forest. Illegal loggers have extracted approximately 2,832,195 and 2,971,343 board feet of Cedar and Mahogany respectively, within an area of 34,188.74 ha. The lumber extracted has an aggregated economic value of US \$9,448,144.00. This study also indicates that the activity is extremely wasteful, as 34.5% and 30.5% of the commercial bole length of Cedar and Mahogany trees is not harvested, with an aggregate economic value of US\$3,058,075.00. Interestingly, FCD was also able to provide estimates currently unavailable regarding Rosewood about the potential values of ecosystem service values lost, which, in this case, was estimated at slightly over 2 million dollars (FCD, 2012). Table 2 combines information garnered for both reports to estimate the total

*Table 2. Illegal Species Harvest and Subsequent Economic Losses in Belize Between 2010-2012*

Species	Location	Value lost to wasteful harvest <sup>5</sup> (in millions USD)	Total Trees Harvested (in board ft.)	Total Worth of Trees Harvested (millions USD)	Value that should have been collected by Belizean Government (millions USD)	Estimated taxation rate for Belize hardwoods based on EIA and FCD figures
Cedar	Chiquibul <sup>6</sup>	1,468,437	2,832,195	4,248,293	290,177	3.07%
Mahogany	Chiquibul	1,589,683	2,971,343	5,199,851		
Rosewood	Toledo <sup>7</sup>	unknown	112 Containers <sup>8</sup>	12,000,000	200,000	1.7%
<b>TOTAL</b>		<b>3,058,120</b>	<b>5,803,538</b>	<b>21,448,144</b>	<b>490,177</b>	<b>4.77%</b>

Sources: (FCD, 2012), (EIA, 2014). Please see Appendix III for calculations

<sup>5</sup> Wasteful harvest is defined as the amount of the tree left behind on the ground unnecessarily due to poor harvesting practices.

<sup>6</sup> All numbers for Cedar Mahogany in the Chiquibul Forest are from Illegal Logging in the Chiquibul Forest: An Economic and Ecological Value Assessment. *Friends for Conservation and Development*. 2012. (FCD, 2012)

<sup>7</sup> All numbers for Rosewood in the Toledo Region collected by in-person interviews in Toledo, Belize, during the EIA investigation in 2012.

<sup>8</sup> Exact container to board foot conversion varies, and information was only provided in a container to value ratio. Unfortunately this makes it impossible to predict the exact board foot equivalent.



The total value lost to the Belizean government due to the illegal harvesting of these hardwoods was roughly \$USD 490,177. This represents only 2.3% of the overall potential market value of the hardwoods exported during this time, projected at \$ USD 21,488,144 (excluding wasteful harvest and ecosystem services, for which information is unavailable in regards to Rosewood).

The Belizean government maintains that there is a 5% VAT, as well as a taxation rate based on board feet, as indicated in the table below (The Substantive Laws of Belize. Customs and Excise Duties Act—Cap 48).

*Table 3. Taxation Rates for Mahogany, Pine, and Cedar, as determined by the Belizean Government, 2000\**

<b>Mahogany, Pine, &amp; Cedar</b>	<b>Taxation Cost</b>
Mahogany logs measuring fifteen inches or less in diameter at either end	100 USD/log
Mahogany not coming within (a) above and not being sawn or dressed in a sawmill in this country into planks, boards, scantlings, baulks, or flitches	25 USD/1000 board ft .025/board ft
Mahogany sawn or dressed in a sawmill in this country into planks, boards, baulks, or flitches	10 USD/1000 board ft .01/board ft
Pine and cedar (other than pine and cedar sawn or dressed in a sawmill in this country into planks, boards, scantlings, baulks or flitches)	5 USD/1000 board ft
Pine sawn or dressed in a sawmill in this country into planks, boards, scantlings, baulks, or flitches	3 USD/1000 board ft
Cedar sawn or dressed in a sawmill in this country into planks, boards, scantlings, baulks or flitches	2 USD/1000 board ft
Logwood	50 cents/ton

Source: Produce Export Duties Act Chapter 60

([http://www.customs.gov.bz/download/produce\\_export.pdf](http://www.customs.gov.bz/download/produce_export.pdf))

\* Please note that taxation rates for Rosewood by board foot are unavailable at this time, as is any hardwood exportation data generated by the government post 2000.

However, the reality is that current legalized taxation processes for hardwoods in Belize are haphazard at best. According to data collected by the World Trade Organization, estimates regarding taxation rates of hardwoods in Central American countries generally range from 3%-15% (WTO). Theoretically, Belize's 5% VAT combined with taxation on a per-board-foot basis should place the country solidly within a comparable and competitive position in regards to neighboring Central American countries. However, it appears that Belize practices almost no export tax enforcement in reality. In actuality the Supplies Control Unit, responsible for

administering price controls in Belize, does not actively monitor the prices of goods sold in Belize, except for rice, beans, and sugar (WTO, Trade Policy Review). Even if the 5% VAT as well as minimal additional taxation costs noted above were to be collected, the Belizean government would still be suffering significant monetary losses due to the undervaluation of its own hardwoods.

## **POLICY OPTIONS**

Available programs exist that can assist Belize if it chooses to change its oversight and taxation methods. While none has proven a panacea by itself, each should be considered as part of an overhaul of the existing system.

### **International Initiatives**

There are a number of existing systems already in use that attempt to alleviate the harm caused by deforestation and illegal logging. Certification schemes, such as the Forest Stewardship Council (FSC), as well as initiatives such as the EU's voluntary partnership agreements (VPAs) are valid mechanisms. However, they fail to combat illegal logging, transnational crime and corruption—rather, the focus is primarily upon either preventing deforestation by applying a monetary value to untouched lands, or simply purchasing timber from countries that already have systems already in place to monitor and prevent illegal logging (Seymour, 2010).

This effort, however well meaning, cannot substitute for involving the entire enforcement chain involved in preventing logging. Law enforcement operations are complex, and involving the entire enforcement chain of customs, forestry, police and the judiciary must be encouraged so as to allow for investigations, arrest, prosecution and conviction of those involved in the illegal logging, including those who participate by forging documents, arranging for tax fraud and all those involved in the organized transnational crime (Cherrington, et. al. 2010). This is not to say that all the current structures are completely ineffective. CITES, for example, is being effectively used by many countries to help insure that the international trade is legal, sustainable and traceable, all worthy efforts. However, both the existing international agreements and the domestic and international law enforcement efforts depend on one another for success. If the profit from illegal logging cannot be driven down, then the schemes to develop partnerships and stakeholder participation are unlikely to succeed, as there is little to no incentive provided to abandon illegal practices (Young 2008). Nonetheless, the current programs are of value and, if enforcement can be increased, could prove relatively effective. For these reasons, the remainder of the section discusses each of these initiatives in more detail and highlight how they may be useful in mitigating illegal harvest of high value hardwoods in Belize.

### ***FLEGT Action Plan- Forest Law Enforcement, Governance, and Trade***

The FLEGT (Forest Law Enforcement, Governance and Trade) Action Plan was put into place in order to reduce the import into the EU of illegally harvested timber. FLEGT has been deemed generally successful at linking various stakeholders together to set universal goals (Beeko and Arts, 2010), however, it is a completely voluntary initiative and provides no law enforcement function (UNEP).

### ***REDD- Reduction of Emissions from Deforestation and Forest Degradation***

The UN based Reducing Emissions from Deforestation and Forest Degradation (REDD) is another popular program currently in use internationally. This initiative places a fiscal value on the carbon stored by forests as an incentive for developing

countries to reduce emissions from deforestation. In 2009, the UN-REDD Program acknowledged the problem of local law enforcement dealing with illegal logging by launching activities to help prevent corruption risks, and current programs frequently require assistance from the UNDP's Global Program on Anti-Corruption for Development Effectiveness. While the approaches to anti-corruption work can vary, those generally utilized in addressing issues surrounding REDD+ include enhancing access to information, encouraging citizen's to demand accountability, promoting the integrity of public officers, helping arrange sound financial management systems, and protecting whistleblowers and those responsible for enforcing existing laws (CIFOR, 2013).

***CITES- Convention on International Trade in Endangered Species of Wild Fauna and Flora***

One other highly regarded program is CITES. This international convention was created to help guarantee that the trade of both plants and animals does not menace their continued existence and wellbeing. The agreements signed between nations subject all trade in the selected species to a variety of controls through the use of a licensing system in order for listed specie to be imported, exported or re-exported (CITES, 2014).

**Monitoring and Assessment Technologies**

All of the existing programs noted as well as any new initiatives require accurate information collection. What type of logging taking place in which location is critical. A key competent any illegal logging detection programs must are field investigations, as there are no other way in which to legitimately verify actions taking place on the ground (Smith, 2002). It is worth noting that reinforcing fieldwork are some newer technologies, including remote sensing and satellite imagery. These tools tend to be significantly less expensive than ground surveys, with the additional advantage of increased greater spatial coverage.

## KEY FINDINGS

In light of numerous existing programs, the question remains as to what has or could work in Belize. Current international recommendations include improving institutional capacities within all sectors of the Belizean Forestry Community, improved utilization of Geographic Information Systems (GIS) technology, long-term sustainable spatial planning, consideration of international policy participation, and improved information sharing. However, to date, very few of these recommendations have accomplished, or even reasonably assessed.

To address the multifaceted aspects of illegal logging—ranging from lack of resources to intense demand—will require a number of initiatives to be implemented simultaneously, as any attempt to address these issues out of context or as discrete concerns would fail to encompass—and therefore effectively address—the major issues inherent in the industry. In summary of the above, the key recommendations that have already been proffered are:

- Improvement of institutional capacities; including the use of GIS technology, spatial planning, and information sharing
- The development of policies and frameworks to implement an effective REDD strategy
- Ensuring clear mechanisms to deal with carbon credits, ensuring tangible benefits from trade not solely benefiting a few large private landowners, company or a select few.
- Prioritization of securing forests from illegal activities and incursions.
- Strengthening of local institutions involved in environmental law enforcement, education and monitoring practices.
- Monitoring and assessment of protected areas to properly estimate deforestation rates due to illegal logging.
- Supplying appropriate resources to enforce the laws and legislation governing logging and trade; including shifting significant resources to the Forest Department and Police.
- CITES listing and enforcement

However, as discovered throughout the course of this study, illegal logging is far from the only issue plaguing Belize's forestry sector. To promote the value of legal practices, the government must first internally reassess the market value and taxation rate on their country's high-value hardwoods. While Belize's taxation rate of approximately 5% places it firmly in standard competitive range for neighboring Latin American countries, the government's failure to apply said taxes on a regular basis or properly value their products is leading to millions of dollars of economic loss on an annual basis.

## RECOMMENDATIONS

Prior to making any localized recommendations, it is important to note that there is a systemic and currently unsolvable problem of undervaluation of precious hardwoods across the board in developing nations, particularly in Latin America and Southeast Asia. The World Bank estimates that illegal logging costs national economies approximately USD \$10 billion annually. It is common practice for large logging corporations to develop or utilize legislative loopholes permitting them to pay minimal land prices while simultaneously avoiding the majority of excise taxes (Butler, 2012).

Tropical nations in particular are losing revenue through the export of unprocessed timber, allowing the product to leave the country while at its lowest potential value point. Several countries have recently banned raw log exports in the 1990s in an effort to increase returns for local operators as well as the government, but raw logs are still frequently smuggled out of timber-rich nations (Butler, 2012).

Increased awareness of timber value in the international market for the suppliers within Belize to ensure a more equitable dispersal of percentage profits along the supply chain is essential. Once the basic suppliers, who are predominantly indigenous Maya, have a clear idea of the value of their product, they could easily raise prices—as long as their doing so occurs with the consent of the Belizean government. Enforcement of higher internal valuation of hardwoods alongside increased monitoring of illegal logging practices should be considered simultaneously. Both the government and the Maya would benefit through increased internalized prices and effective enforcement; the Maya through a significant augmentation in income due to an increase in the value of their product, and the government through both increased income on higher value goods as well as the additional ability to collect royalties on previously untouched illegal timber.

It is difficult to predict precisely how much money will be needed over what period of time to truly alter the illegal logging practices taking place. There are numerous “tipping points” that are of vast importance and would be worth considering for future study—for instance, the minimum salary necessary to pay a ranger to ensure quality of life and prevent potential corruption, or the eventual taxation rate on high value hardwoods that would strike the ideal balance between affordable trade and actual in-country profit. This plan requires a number of issues that must be addressed, many simultaneously—however, the effects of implementation have the potential to be immensely profitable from an economic standpoint, allowing Belize to retain a significantly higher percentage of the overall value of its own timber products.

## STEP I (Immediate Actions Needed)

- Increase internal valuation of hardwoods
- Increase number of forestry enforcement employees
- Physical resource; such as cars, gasoline, uniforms, walkie-talkies, and other necessities must be increased significantly and dispersed appropriately
- Issues of corruption within and surrounding the government as well as any other participants in the supply chain must be addressed immediately, consistently, and transparently. While an assessment of Belize's corruption issues and potential solutions is beyond the scope of this particular paper, some recommendations regarding first steps in this process may be found in Appendix II.
- Education of Indigenous peoples and middlemen regarding the actual (economic and ecological value) of hardwoods being sold
- Support for indigenous industry to allow for value added within Belize
- Access to more advanced monitoring and enforcement mechanisms, such as GPS locating, overhead flights, GIS training and access, and satellite imagery.

## STEP II (Long-term Actions)

- Consideration of international policy approaches, such as REDD+, VPAs, and CITES
- Governmental pressure applied from Belize to countries purchasing their goods to abide by the laws and treaties already in effect between countries
- Increased political power to environmental ministry
- Consider the creation of processing plants in Belize to further streamline the supply chain and increase the total share that remains in Belize.

As previously noted, every element of this system must be monitored carefully to avoid corrupt activities. Without transparent markers and the opportunity for external examination, there is a significant chance that any additional value added or tax increase would merely be redistributed unfairly amongst high-ranking officials rather than being utilized for its intended purpose—or else a deal of even higher value would be struck with the purchasing parties, benefitting only a few. Due to this concern, I recommend that a large portion of the increased tax funds be allocated to bi-annual financial audits that are then made available to the public.

Significantly decreasing illegal logging of valuable hardwoods within Belize is a task that can be accomplished, but only with significant patience for slow-moving policies and an understanding that the current system is not only inefficient but corrupt. The money is available through a slight increase in taxation that would not cause harm to current trade nor pull funding from any other essential government programs. Should Belize choose to not only implement new laws and regulations but follow through by enforcing them, it is possible that a pathway to both environmental and economic sustainability—and even profit--has the potential to be achieved over time.

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## APPENDICIES

### APPENDIX I. Questions posed to all interview participants

1. What are your major concerns regarding illegal logging in Toledo?
2. Have you seen any major trends or changes over the course of the past few years?
3. How do you feel like illegal logging has impacted you?
4. How do you think the Forest Service is performing, and what could improve?
5. How much are you paid for your services in the supply chain? How are you paid?
6. How much do you think Belize loses, monetarily, every year due to illegal logging?
7. What are the most vulnerable areas in Belize, and what type of timber is being harvested there?
8. Do you know where the timber goes after it is harvested?
9. What type of working conditions are in place for harvesters?
10. Do you believe this is an important issues, and if so, why?
11. How do you think you could mobilize the government to take action?
12. What would you like to see in the future regarding sustainable forest management?

### APPENDIX II. Link to the FDC Report Regarding Illegal Logging in Chiquibul

Illegal Logging in the Chiquibul Forest: An Economic and Ecological Value Assessment. *Friends for Conservation and Development*. 2012.

<http://www.fcdbelize.org/download/Publication/reports/Illegal%20Logging%20B ooklet%202012.pdf>

### APPENDIX III. CALCULATIONS

Amount paid to Mayan Communities (average amount per board foot, USD)	Amount paid to middlemen (average amount per board foot, USD)	Average amount sold for in Chinese markets (per board foot, USD)
<b>1.75</b>	<b>2.50</b>	<b>65.00</b>
(=65-1.75) Cost Disparity (USD)	(=65-2.50) Cost disparity (USD)	(=65-(2.50+1.75)) Cost disparity (USD)
<b>-63.25</b>	<b>-62.80</b>	<b>+53.55</b>
(=1.75/65) % of total profit	(=2.50/65) % of total profit	(100-2.7+3.8) % of total profit
<b>2.7</b>	<b>3.8</b>	<b>93.5</b>

Species	Location	Value lost to wasteful harvest <sup>9</sup> (in millions USD)	Total Trees Harvested (in board ft.)	Total Worth of Trees Harvested (millions USD)	Amount that should have been collected by Belizean Government (millions USD)	Estimated taxation rate for Belize hardwoods based on EIA and RCD figures
Cedar	Chiquibul <sup>10</sup>	1,468,437	2,832,195	4,248,293	290,177	$= (290,177 / 9,448,144)$
Mahogany	Chiquibul	1,589,683	2,971,343	5,199,851		$= (\text{amount collected} / \text{total value of harvested trees}) = 3.07\%$
Rosewood	Toledo <sup>11</sup>	unknown	112 Containers <sup>12</sup>	12,000,000	200,000	$= (200,000 / 12,000,000) = 1.7\%$
<b>TOTAL</b>		<b>3,058,120</b>	<b>5,803,538</b>	<b>21,448,144</b>	<b>490,177</b>	<b>= 4.77%</b>

All numbers for Cedar and Mahogany in the Chiquibul Forest were garnered from *Illegal Logging in the Chiquibul Forest: An Economic and Ecological Value Assessment*. Friends for Conservation and Development. 2012. (FCD, 2012). All numbers for Rosewood in the Toledo Region were collected by in-person interviews in Toledo, Belize, during the EIA investigation in 2012. Please note that due to the different methodologies utilized, there are some categories (such as ecosystem service losses) where full information was not available, so the data was excluded from the total calculations.

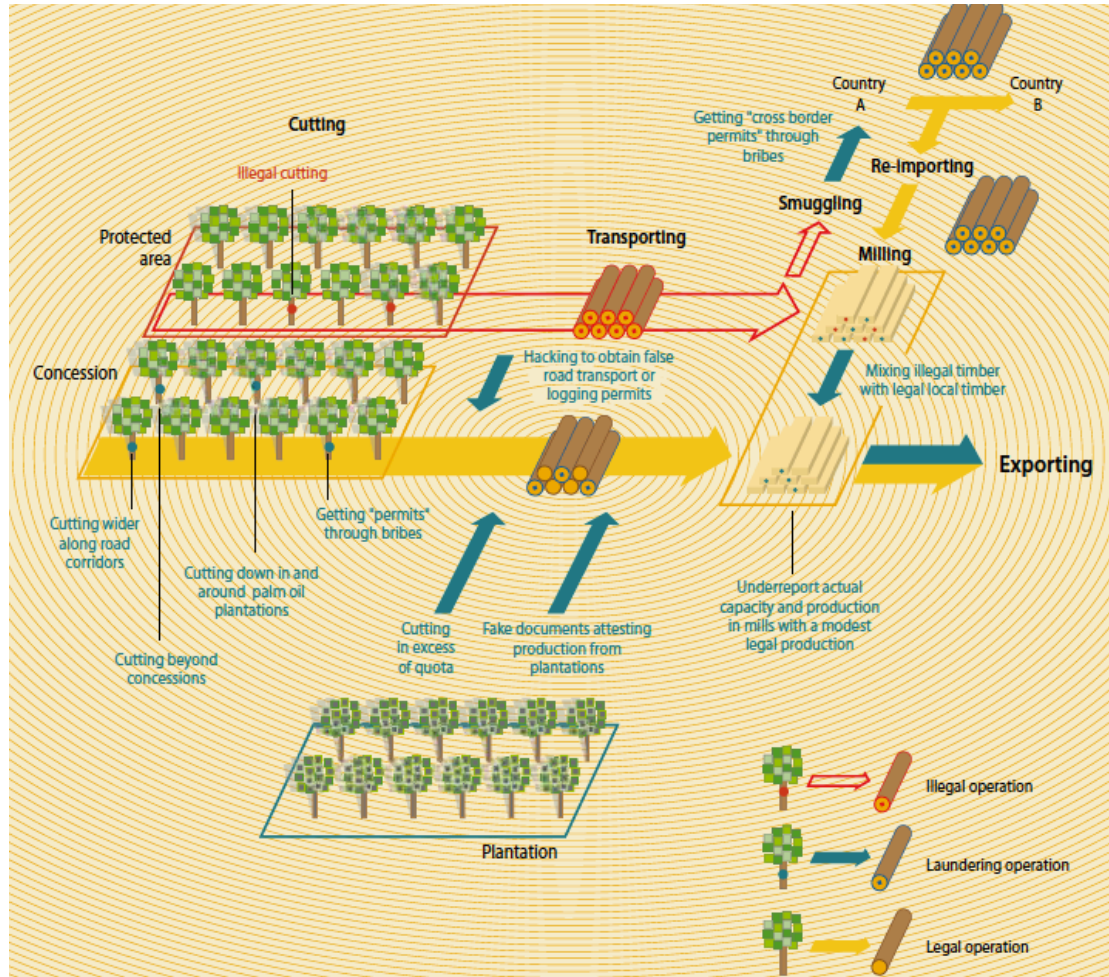
<sup>9</sup> Wasteful harvest is defined as the amount of the tree left behind on the ground unnecessarily due to poor harvesting practices.

<sup>10</sup> All numbers for Cedar Mahogany in the Chiquibul Forest are from *Illegal Logging in the Chiquibul Forest: An Economic and Ecological Value Assessment*. Friends for Conservation and Development. 2012. (FCD, 2012)

<sup>11</sup> All numbers for Rosewood in the Toledo Region collected by in-person interviews in Toledo, Belize, during the EIA investigation in 2012.

<sup>12</sup> Exact container to board foot conversion varies, and information was only provided in a container to value ratio. Unfortunately this makes it impossible to predict the exact board foot equivalent.

## APPENDIX IV. Weaknesses Along the Timber Supply Chain



Source: Nellemann 2012

## APPENDIX V. ANTI-CORRUPTION RESOURCES

- Anti-Corruption Helpdesk: On-Demand Research on Corruption. *Transparency International*.  
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- Anti-Corruption Policies in the Forest Sector and REDD+. Center for International Forestry Research (CIFOR)  
[http://www.cifor.org/publications/pdf\\_files/Books/BAngelsen090213.pdf](http://www.cifor.org/publications/pdf_files/Books/BAngelsen090213.pdf)
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